

1 **CLAIMS**

2 1. A method of providing a hinted font comprising:

3 selecting a first TrueType font that has been hinted with hints that define
4 constraints between control points associated with individual characters of the
5 font;

6 identifying individual characters of a second TrueType font that correspond
7 to individual characters of the first TrueType font, the second TrueType font being
8 different from the first TrueType font, individual characters of the second
9 TrueType font being unhinted; and

10 transferring hints from characters of the first TrueType font to individual
11 corresponding characters of the second TrueType font.
12

13 2. The method of claim 1, wherein the first TrueType font comprises a
14 font that has control-point level hints attached to it and said transferring of the
15 hints comprises transferring the control-point level hints from characters of the
16 first TrueType font to control-point level hints in characters of the second
17 TrueType font.
18

19 3. The method of claim 2, wherein at least one control point of the first
20 TrueType font has been programmatically relocated to lie on top of another
21 control point of the first TrueType font.
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1 4. The method of claim 1, wherein said selecting comprises selecting
2 the first TrueType font from among a number of different fully hinted TrueType
3 fonts.

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5 5. The method of claim 1, wherein said selecting comprises
6 automatically selecting the first TrueType font from among a number of different
7 fully hinted TrueType fonts that are resident in a library.

8
9 6. The method of claim 1, wherein said selecting comprises further
10 selecting a TrueType font that is different from the first and second TrueType
11 fonts, and transferring hints from characters of the selected different TrueType
12 font to individual characters of the second TrueType font.

13
14 7. The method of claim 1, wherein said identifying comprises matching
15 one or more contours on a character of the first TrueType font with one or more
16 contours of a character of the second TrueType font.

17
18 8. The method of claim 7, further comprising after said matching,
19 pairing individual points associated with a contour of the character of the first
20 TrueType font with individual respective points associated with a corresponding
21 contour of the character of the second TrueType font.

1 **9.** The method of claim 8, wherein said transferring comprises
2 transferring hints that are defined in terms of the individual points associated with
3 the contour of the character of the first TrueType font.

4
5 **10.** The method of claim 8, wherein said transferring comprises
6 transferring hints that are defined in terms of individual points associated with the
7 contour of the character of the first TrueType font by changing the definition of
8 the hints to refer to individual points associated with the contour of the character
9 of the second TrueType font.

10
11 **11.** The method of claim 8, wherein said pairing of the individual points
12 defines one set of multiple point pairs, and further comprising defining multiple
13 sets of point pairs, each set of point pairs comprising different pairings of points.

14
15 **12.** The method of claim 11 further comprising:
16 calculating a score for each set of point pairs;
17 selecting a set of point pairs based upon the calculated score;
18 said transferring comprising using the selected set of point pairs as a basis
19 for transferring the hints.

20
21 **13.** The method of claim 12, wherein said calculating comprises:
22 for each individual pair of points, calculating an individual local score; and
23 summing the individual local scores for all of the individual pairs of points
24 to provide an overall score for each set of point pairs;
25

1 said selecting of the set of point pairs comprising selecting the set with the
2 best overall score.

3
4 **14.** One or more computer-readable media having computer-readable
5 instructions thereon which, when executed by a computer, implement the method
6 of claim 1.

7
8 **15.** The method of claim 1, wherein said transferring comprises
9 transferring one or more conditionally-specified hints.

10
11 **16.** The method of claim 1 further comprising discarding a hint where it
12 appears inappropriate for a character of the second TrueType font.

13
14 **17.** The method of claim 1 further comprising defining at least one
15 conditionally specified hint associated with a character of the first TrueType font,
16 and transferring said conditionally specified hint if a condition associated with the
17 conditionally specified hint is met by a corresponding character of the second
18 TrueType font.

19
20 **18.** A method of providing a hinted TrueType font comprising:
21 providing a source character from a fully hinted TrueType font from which
22 hints are to be transferred, the source character having multiple control points that
23 are constrained by the hints;

1 providing a target character from a different TrueType font to which hints
2 from the source character are to be transferred, the target character having control
3 points that will be constrained by the transferred hints; and

4 transferring hints associated with the source character and that refer to
5 control points on the source character to hints associated with the target character
6 and that refer to control points on the target character.

7
8 **19.** The method of claim 18, wherein said transferring comprises
9 modifying control point references contained in the hints.

10
11 **20.** The method of claim 18, wherein said transferring comprises
12 modifying one or more values contained in a table that is referenced by at least
13 one hint.

14
15 **21.** The method of claim 18, wherein said transferring comprises pairing
16 individual control points associated with the source character with individual
17 control points associated with the target character to define a set of multiple pairs
18 of control points, and, for each pair of control points, calculating a score that
19 characterizes the pair of control points.

20
21 **22.** The method of claim 21, wherein the score characterizes the
22 desirability of a match between the control points.

1 **23.** The method of claim 22, wherein the desirability of the match is a
2 function of incoming/outgoing directions that are associated with each control
3 point.

4
5 **24.** The method of claim 22, wherein the desirability of the match is a
6 function of a control point constituting a local minimum or maximum.

7
8 **25.** The method of claim 22, wherein the desirability of the match is a
9 function of incoming/outgoing lines associated with the control points.

10
11 **26.** The method of claim 22, wherein the desirability of the match
12 considers whether each control point of a pair falls into one of a plurality of
13 common bands that are defined for each character.

14
15 **27.** The method of claim 21, wherein said transferring comprises:
16 defining multiple sets of multiple pairs of control points;
17 calculating a score for each pair of control points for each of the multiple
18 sets,
19 summing individual control point pair scores for each set of multiple pairs
20 of control points to provide an overall score;
21 selecting a set of multiple pairs of control points based upon the overall
22 score; and
23 transferring the hints using the selected set of multiple pairs of control
24 points as a basis for said transferring.

1 **28.** The method of claim 27, wherein the control points that comprise
2 the multiple pairs comprise control points that are located on a contour associated
3 with the individual character.

4
5 **29.** The method of claim 28, wherein the defining of the multiple sets of
6 multiple pairs comprises, for each set:

7 selecting a control point on the source character as a starting point;

8 selecting a control point on the target character as a starting point;

9 pairing the two selected points;

10 selecting a different control point on the source character and pairing it with
11 a selected control point on the target character and continuing to select and pair
12 control points on the source character until there are no unpaired control points on
13 the source character.

14
15 **30.** The method of claim 29, wherein each set of the multiple sets of
16 multiples pairs comprises different pairings of selected points.

17
18 **31.** One or more computer-readable media having computer-readable
19 instructions thereon which, when executed by a computer, implement the method
20 of claim 18.

21
22 **32.** A method of providing a hinted font comprising:
23 defining hints for a glyph of a first font, the hints being defined by one or
24 more statements that contain multiple values that define constraints for the glyph,
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1 at least one of the values referencing a table entry that corresponds to a table value
2 that is used to constrain the glyph;

3 establishing an association between the glyph of the first font and a glyph
4 of a second font, the second font being different from the first font; and

5 translating the one or more statements so that the one or more statements
6 now pertain to and define constraints for the glyph of the second font.

7
8 **33.** The method of claim 32, wherein the first and second fonts comprise
9 TrueType fonts.

10
11 **34.** The method of claim 32, wherein said translating comprises
12 manipulating at least some of the values of the one or more statements.

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14 **35.** The method of claim 32, wherein some of the values pertain to
15 specific points on the glyph of the first font, and:

16 said establishing comprises establishing an association between the specific
17 points on the glyph of the first font and specific points on the glyph of the second
18 font; and

19 said translating comprises changing at least some of the values of the
20 individual statements to correspond to the specific points on the glyph of the
21 second font.

22
23 **36.** The method of claim 35, wherein said changing of at least some
24 values comprises changing a table value.

25

1 **37.** The method of claim 36, wherein said changing of the table value
2 comprises:

3 determining a plurality of natural distances in the glyph of the second font,
4 the natural distances being defined relative to specific points in the glyph of the
5 second font that are to be constrained by the table value; and

6 calculating a new table value for the table entry as a function of the natural
7 distances.

8
9 **38.** An automated hinting system programmed with instructions which
10 execute to implement the method of claim 32.

11
12 **39.** An automated hinting system comprising:
13 a computer-readable medium;
14 one or more processors;
15 computer-readable instructions resident in the computer-readable medium
16 which, when executed by the one or more processors, cause the automated hinting
17 system to:

18 select a first TrueType font that has been hinted with hints that
19 define constraints between control points on individual characters of the
20 font;

21 identify individual characters of a second TrueType font that
22 correspond to individual characters of the first TrueType font, the second
23 TrueType font being different from the first TrueType font, individual
24 characters of the second TrueType font being unhinted; and
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1 transfer hints from characters of the first TrueType font to individual
2 corresponding characters of the second TrueType font.

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4 **40.** The automated hinting system of claim 39, wherein the automated
5 hinting system identifies the individual characters by matching one or more
6 contours on a character of the first TrueType font with one or more contours of a
7 character of the second TrueType font.

8
9 **41.** The automated hinting system of claim 39, wherein the automated
10 hinting system transfers the hints by pairing individual control points associated
11 with characters and transferring hints that are defined in terms of the individual
12 control points.

13
14 **42.** The automated hinting system of claim 39, wherein the automated
15 hinting system transfers the hints by pairing individual control points associated
16 with characters and transferring hints that are defined in terms of the individual
17 control points, the transferring comprising changing a hint definition to refer to
18 one or more control points associated with the character to which the hint is
19 transferred.